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Address: R. J. Dowsett, 12 rue des Lavandes, F-34190 Ganges, France (e-mail: Dowsett@aol.com). P. M. Leonard, Kafue Fisheries, P.O. Box 37940, Lusaka, Zambia (e-mail: pleonard@zamnet.zm).

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Review of the montane bird species from Mindanao, Philippines: Part 1—Black-and-cinnamon Fantail, *Rhipidura nigrocinnamomea*

by Kelley R. Reis & Robert S. Kennedy

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Most of the Philippine archipelago's avifauna is a "fringing archipelago" type, the result of colonization and evolution of endemic forms in island isolation (Rand 1970). The study of these endemics is important because forests on these islands are being cleared at an alarming rate (Dickinson *et al.* 1991). To assess the effects of deforestation on the Philippine avifauna, the Philippine Biodiversity Inventory (PBI) began in 1989 as a joint survey between the National Museum of the Philippines and the Cincinnati Museum of Natural History. From 1993 to 1995, PBI teams conducted altitudinal surveys in Mindanao on Parker Volcano and Mts. Apo, Busa, Kitanglad, Pasion, and Puting-Bato (see Fig. 1). As a result of these surveys, many new distributional records were obtained and many new taxa were

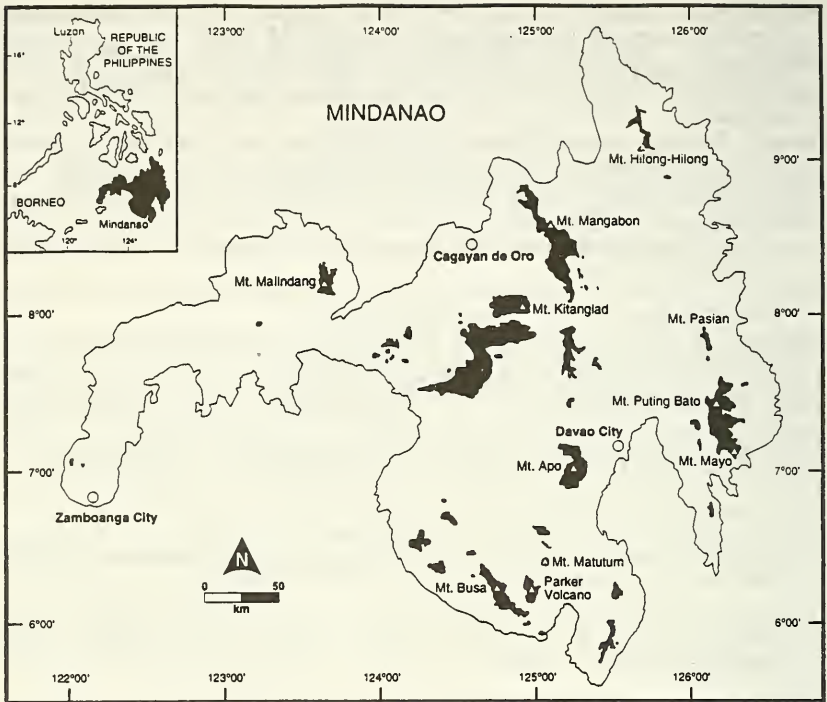


Figure 1. Map of Mindanao, Philippines showing the distribution of *Rhipidura nigrocinnamomea* (named mountain peaks marked by triangles) and the distribution of land above 1,200 m (filled black) on the island.

discovered, including a new species and subspecies of sunbird (Kennedy *et al.* 1997).

This paper, on the Black-and-cinnamon Fantail, *Rhipidura nigrocinnamomea*, is the first of a series reviewing the systematics and biogeography of montane bird species of Mindanao. This fantail is a common endemic of Mindanao and inhabits the understorey up to 15 m above the ground at elevations greater than 1,000 m in mid-montane and mossy forest. Hartert (1903) described *R. nigrocinnamomea* based on specimens obtained by Walter Goodfellow on Mt. Apo (see Fig. 1 for this and subsequent localities) in April 1903. A second population was described by Mearns (1906) as a separate subspecies (*R. nigrocinnamomea hutchinsoni*) based on plumage colouration from specimens obtained from Mt. Malindang in June 1906. *Rhipidura n. hutchinsoni* has since been recorded from Mt. Kitanglad (Ripley & Rabor 1961) and the Mt. Mangabon range (previously reported as Civolig and Daggayan) south of Gingoog City, Misamis Oriental (Meyer de Schauensee & duPont 1962). Dickinson *et al.* (1991) listed specimens from Mt. Matutum and Mt. Mayo under

the latter race but did not verify these as subspecies. The PBI teams discovered new populations of this species on Mt. Busa, Mt. Puting-Bato, and Parker Volcano and we located unreported specimens from Mt. Hilong-Hilong. In this paper we review all known populations of *R. nigrocinnamomea* and assign them to subspecies.

Materials and methods

We examined specimens from the Museum of Natural History & Science, Cincinnati Museum Center (CMNH), Delaware Museum of Natural History (DMNH), Florida Museum of Natural History (VF), Field Museum of Natural History (FMNH), and National Museum of Natural History, Smithsonian Institution (USNM).

Specimens examined

Rhipidura n. nigrocinnamomea: (54) Mt. Apo—8 males, 6 females (NMP-CMNH), 4 males, 2 females (FMNH), 2 males, 1 female (DMNH), 4 males, 2 females, 2 unsexed (USNM); Mt. Busa—5 males, 3 females (NMP-CMNH); Mt. Matutum—2 males (FMNH), 2 males, 2 females (DMNH); Parker Volcano—7 males, 1 female, 1 unsexed (NMP-CMNH). *Rhipidura n. hutchinsoni*: (88) Mt. Hilong-Hilong—2 males, 1 female (FMNH), 1 male, 2 females, 2 unsexed (DMNH), 5 males, 3 females (USNM); Mt. Kitanglad—3 males, 1 female, 2 unsexed (NMP-CMNH), 11 males, 6 females, 1 unsexed (FMNH); Mt. Mangabon—6 males, 3 females, 1 unsexed (DMNH); Mt. Malindang—14 males, 9 females (FMNH), 3 males, 5 females (USNM); Mt. Mayo—1 male (VF), 1 male, 1 female (FMNH), 2 males, 1 female (USNM); Mt. Puting-Bato—1 male (NMP-CMNH).

Statistical analysis

We used a standard analysis of variance (ANOVA) with unequal sample sizes to analyse differences in wing chord, tail length, tarsus length, culmen from base to tip and mandible length between sexes with all populations combined, and within a sex, between populations. We performed within-sex comparisons using three different treatments for assigning populations. The first treated each of the eight known populations separately (because of their proximity to one another we treat Mt. Mayo and Puting-Bato as one population, and Mt. Busa and Parker Volcano as one population). The second grouped populations with little or no geographical barriers between them as follows: Group 1—Mts. Apo, Busa, Matutum, and Parker Volcano; Group 2—Mts. Hilong-Hilong, Mayo, and Puting Bato; Group 3—Mts. Kitanglad and Mangabon; and Group 4—Mt. Malindang. The third compared the two subspecies of *R. nigrocinnamomea* after we combined populations with similar plumage.

Plumage comparisons

We compared plumage patterns and colours between sexes within and between each of the eight populations.

TABLE 1
Measurements (mm) of *Rhipidura nigrocinnamomea*, all populations combined

Measurements	Males <i>n</i> =68		Females <i>n</i> =45	
	X ± SD	Range	X ± SD	Range
Wing chord**	75.2 ± 2.1	70.1–80.6	71.8 ± 2.6	66.5–77.0
Tail**	83.3 ± 2.9	76.5–87.8	81.1 ± 2.7	75.4–87.0
Tarsus	16.1 ± 0.8	15.0–18.5	16.5 ± 0.8	14.7–18.5
Culmen**	13.8 ± 1.0	10.7–15.9	13.4 ± 0.7	11.5–15.0
Mandible	7.7 ± 0.5	6.1–8.7	7.5 ± 0.5	6.3–9.0

**Statistical significance ($P \leq 0.01$) related to differences between sexes.

Results and discussion

Sexual dimorphism

We found no significant ($P \leq 0.01$) morphological variation between females and between males within any of the population comparisons. However, at the species level, males are significantly ($P \leq 0.01$) larger than females in wing chord, tail length, and culmen length. Measurements of males and females for all populations combined are summarized in Table 1. We found no colour or pattern differences in plumage between the sexes.

Geographic variation

We agree with the recognition of two subspecies for *R. nigrocinnamomea* based on substantial variation in plumage colouration between populations of central and southern Mindanao and those found elsewhere on the island. Below we highlight plumage characteristics unique to each subspecies and point out the minor variations that we have observed between the populations of each subspecies.

R. n. nigrocinnamomea

Birds from the type locality, Mt. Apo, are characterized by a white upper breast merging into a pale cinnamon breast and belly, and a white line across the forehead connecting two short superciliary bands. The white upper breast is variable in width and ranges from nearly absent to very broad. Birds from Mt. Matutum have a broad white chest band but tend to have a slightly darker cinnamon belly. Specimens from Parker Volcano and Mt. Busa have the broadest white upper breasts, and their bellies, although variable, are paler than those from Mt. Apo. We do not consider the variations of Mts. Matutum and Busa, and Parker Volcano specimens sufficiently different from Mt. Apo specimens to warrant separation, and thus include them in *R. n. nigrocinnamomea*.

R. n. hutchinsoni

Birds from the type locality, Mt. Malindang, are distinguished by the absence of white on the upper breast and by having a deeper cinnamon

hue on the breast and belly. Like *nigrocinnamomea*, they have a white band across the forehead that joins white superciliary stripes over the eye. This characteristic is more variable in *hutchinsoni* with some specimens having a very broad band and some very narrow.

Birds from Mt. Kitanglad and Mt. Mangabon appear to be identical to each other but tend to be slightly paler than those from Mt. Malindang. Ripley & Rabor (1961) have pointed out from Mt. Kitanglad birds, and Meyer de Schauensee & duPont (1962) for Mt. Mangabon birds, that a few individuals have small amounts of white in the upper breast approaching the least white breasted individuals of *R. n. nigrocinnamomea*. We agree with Ripley & Rabor (1961) and Meyer de Schauensee & duPont (1962) that these populations are somewhat intermediate between the two subspecies but that they are closer to *R. n. hutchinsoni* and should therefore be assigned there.

Individuals from Mts. Hilong-Hilong, Mayo, and Puting-Bato are similar to one another. They differ from Mt. Malindang birds by generally having darker cinnamon underparts and a less pronounced white band on the forehead. Although these differences are marked, we cannot conclusively assign them to a new taxon based on the limited material before us from these populations; thus they should be considered representative of *R. n. hutchinsoni*.

During the PBI surveys, frozen and/or alcohol preserved tissues were obtained from Mts. Apo, Busa, Kitanglad, and Puting-Bato. Analysis of these tissues could substantiate genetic differences between the populations and further clarify the status of the subspecies of this fantail.

Altitudinal distribution

Published altitudinal records of *R. nigrocinnamomea* include 2,438 m (8,000 ft) on Mt. Apo (Hartert 1903), 1,219 to 2,404 m (4,000 to 9,000 sic ft) on Mt. Malindang (Mearns 1907), and 991 m (3,250 ft) and 1,219 m (4,000 ft) at Civolig and Daggayan, respectively, in the Mt. Mangabon range (Meyer de Schauensee & duPont 1962). The altitudinal information of unpublished data recorded on specimen labels or from the altitudinal surveys made by the PBI team are summarized in Table 2.

There is some evidence to suggest that the lower limits of the altitudinal range of *R. nigrocinnamomea* may be changing as a result of deforestation and/or competition with its Mindanao congener, the Blue Fantail, *Rhipidura superciliaris*, which is found at elevations less than 1,200 m. In 1972 and 1973, Kennedy did not see *R. nigrocinnamomea* in the forests of the Baracatan field station (ca. 1,000 to 1,100 m) on the boundary of Mt. Apo National Park in Toril, Davao City, although he visited the area on more than 10 different occasions. Instead, the Blue Fantail was common at the site. Between 1977 and 1983, Kennedy saw the Black-and-cinnamon Fantail at this same site several times but the Blue Fantail was still the predominant species. Most of the forest below the field station had been cleared by that time. During the 1993 PBI survey at the same site, only *R. nigrocinnamomea* was sighted (10+) and captured (5 specimens) in the vicinity. This suggests that due to

TABLE 2

Altitudinal distribution of *Rhipidura nigrocinnamomea* on Mindanao, Philippines.
n=number of specimens

Location	Altitudinal range (m)
<i>Rhipidura n. nigrocinnamomea</i>	
Mt. Apo (<i>n</i> =57)	1,060–2,438
Mt. Busa (<i>n</i> =9)	1,273–1,516
Mt. Matutum (<i>n</i> =3)	1,128–1,676
Parker Volcano (<i>n</i> =9)	1,800
<i>Rhipidura n. hutchinsoni</i>	
Mt. Hilong-Hilong (<i>n</i> =8)	1,219–1,935
Mt. Kitanglad (<i>n</i> =24)	1,100–1,890
Mt. Malindang (<i>n</i> =23)	1,067–2,270
Mt. Mangabon (<i>n</i> =9)	991–1,219
Mt. Mayo (<i>n</i> =3)	1,585–1,981
Mt. Puting-Bato (<i>n</i> =8)	1,190–1,350

removal of the lowland forest below 1,000 m and subsequent competition with *R. nigrocinnamomea*, the Blue Fantail has apparently disappeared at the upper limits of its altitudinal range, while the Black-and-cinnamon Fantail has expanded its range into the lower limits of the remaining forest.

Conservation status

The mid-montane and montane forests of Mindanao with few exceptions are devoid of commercial timber and are usually in areas too steep for agricultural purposes. For these reasons, *R. nigrocinnamomea* is still common and its habitat is not immediately threatened.

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Addresses: K. R. Reis, Department of Zoology, University of Florida, Gainesville, Florida 32611, U.S.A., email: kreis@zoo.ufl.edu; R. S. Kennedy, Frederick and Amey Geier Collections and Research Center, Museum of Natural History and Science, Cincinnati Museum Center, 1720 Gilbert Avenue, Cincinnati, Ohio 45202, U.S.A.

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Comments on the taxonomy of the genus *Cynanthus* (Swainson), with a restricted type locality for *C. doubledayi*

by Adolfo G. Navarro-Sigüenza & A. Townsend Peterson

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Howell & Webb (1995) presented a rearrangement of the taxonomy of the hummingbirds of the Mexican near-endemic genus *Cynanthus*, although without explicit justification for changes proposed. They correctly divided the former *C. latirostris* complex into two portions—that of northern and central Mexico (*C. latirostris*), and that of coastal southwestern Mexico (*C. doubledayi*). In addition, they mentioned the form *C. l. lawrencei* of the Islas Tres Mariás as a distinct subgroup of *C. latirostris*, at times considered a separate species. While we agree with their conclusions, our examination of series of specimens of each form and several of the types leads us to point out a correction necessary for the accurate documentation of the group's taxonomy.

Nominate *latirostris* was described by Swainson (1827) from the "Tableland of Mexico", a locality later corrected to "Valley of Mexico, near Mexico City" by Moore (1939). Subsequent forms described included *doubledayi*, *toroi*, and *nitidus* of Guerrero and southwestern Mexico, *magicus* of northwestern Mexico, *propinquus* of Guanajuato and Michoacán, and *lawrencei* of the Islas Tres Mariás. Clearly, confusion and synonymy are suggested in the plethora of forms named from Guerrero, the subject of the present note.

The name *doubledayi* was first applied by Bourcier (1847) to a specimen apparently now housed in the Loddiges Collection of the Natural History Museum, Tring, allegedly from "Rio Negro", [Brazil]. Subsequently, Salvin & Godman (1889) described *Iache nitida* from a specimen taken by Mrs H. H. Smith at Río Papagaio, Acapulco, carefully contrasting it with what they thought was *doubledayi*: